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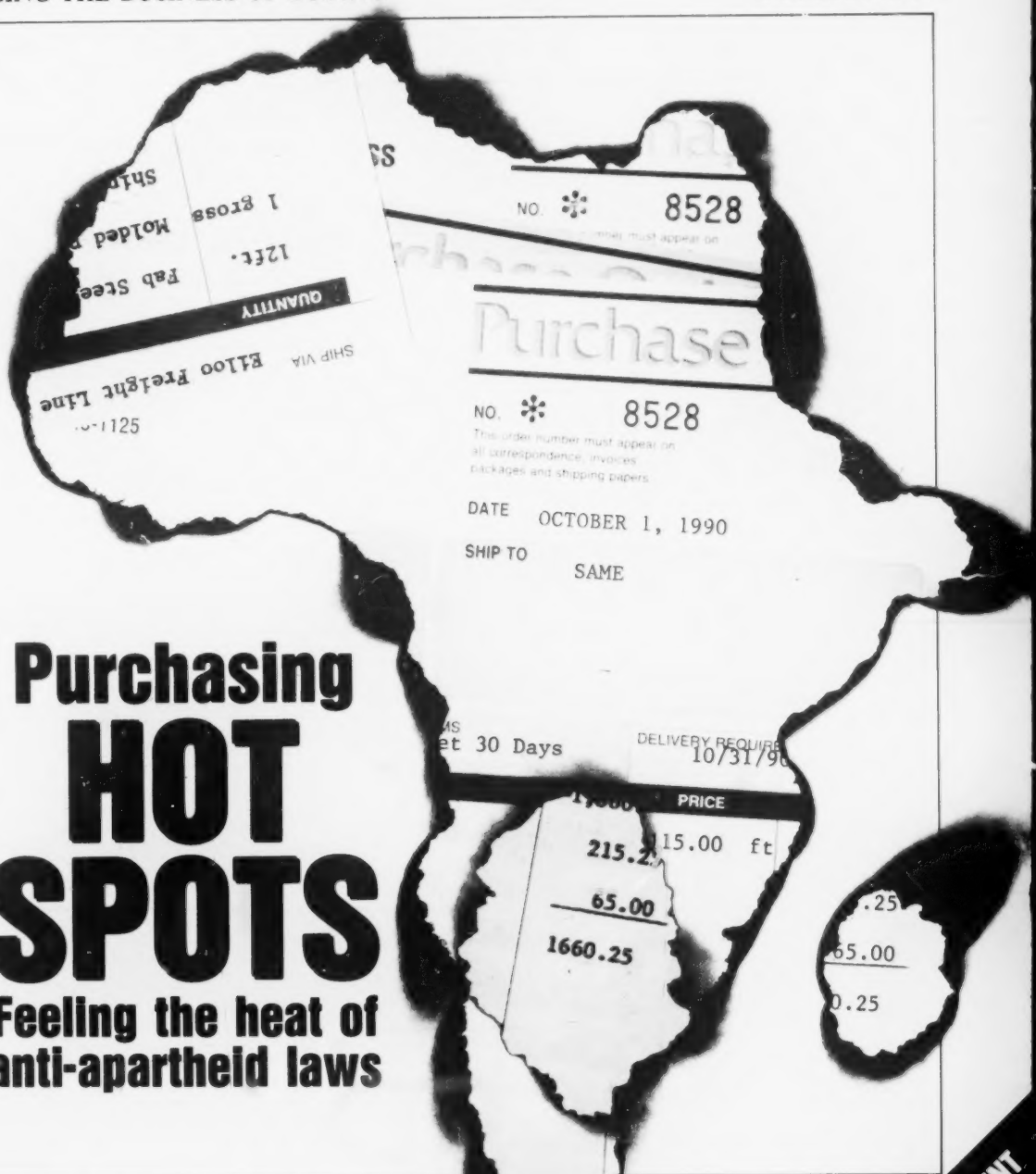
PurchasingWorld®

MANAGING THE BUSINESS OF BUYING

OCTOBER 1990



Purchasing HOT SPOTS

Feeling the heat of anti-apartheid laws

- UCC helps buyers
- Management's double standard
- Our oil addiction

OFFICE EQUIPMENT GUIDE

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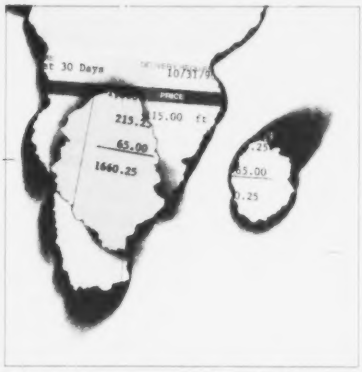

Buyers for several U.S. cities have to deal with legislative restrictions.
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New products and technologies were featured at this year's NOMDA show.
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FEATURES

exist? can equipment be leased? **Fax machines** are headed toward faster transmission speeds as well as the use of plain paper instead of thermal; portable faxes are making strides, too. **Copiers** are becoming more multifunctional, with higher-priced models offering not only color copies and high speeds, but job programming, editing and document finishing processes.

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PurchasingWorld

Changing profile

Research director Peter Young is putting the final touches on this year's version of our triennial survey of purchasing professionals.

I know that Peter is quite pleased with your response and extends his thanks to each of you.

Returns of the survey were more than 20%—an excellent response rate when you consider that the survey questionnaire was six pages long. For that reason alone, this expanded survey will serve as a real benchmark against which we will be able to identify trends in purchasing departments and in your job responsibilities.

The survey was comprehensive in scope. In addition to basic job responsibilities, it covered a number of other areas: working with other company functions and departments, source development, evaluation, selection, and management, certification programs, plant visits, and buying responsibility and intentions by specific product category.

Here's a sampling of the results:

Our purchasing readers are better educated today than ever before...20.1% have graduate degrees, 48.7% have undergraduate degrees, and another 8.8% have a 2-year degree, while 16.4% have attended college.

Their compensation level is more nearly beginning to mirror their experience, i.e., median income is almost $50,000, while 58.2% have between five and 20 years experience in purchasing.

PurchasingWorld readers continue to work closely with other functions and departments as part of informal or formal buying teams. For first time or new order buying, 78.4% of our readers work with design engineering; 75.8% work with production/manufacturing; and 73.7% work with quality control. On reorder purchases, 56.3% of our readers work with production, and 53.8% work with quality control.

For purchasing professionals, however, the basics are still supplier development and management. Almost all (99.2%) of our readers evaluate existing suppliers, develop new suppliers, recommend and select suppliers, and set their companies' purchasing policies and standards.

The skilled negotiators in any company, 97.9% of our readers put together contracts, 94.8% schedule delivery of products; 94.6% authorize purchases; 93.2% participate in value analysis activities, and 89.8% say they are directly involved in controlling product quality.

In several increasingly important areas, 83% of our readers say they determine whether to make or buy a product. And 83% specify mode and carrier for inbound shipments. Their influence reaches beyond their own manufacturing location, as 62.6% say that they manage buying for other manufacturing locations within their companies.

When you think about what goes into your purchasing day, you might want to consider how your job responsibility continues to command a more important role in deciding the overall success of your company. That's a message that we should constantly communicate to top management.

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PW PREDICTS

International interdiction, domestic decay

The Iraqi invasion of Kuwait has incited a period of international interdiction, the quickness of which may be unprecedented. With the United States spearheading the deterrence, global trade sanctions are now underway.

While all the economic ramifications of this situation will be rippling their way through our domestic system for quite some time, the probability of a near-term recession has grown. Moreover, revisions of past data suggest our fragile economy is even weaker than previously believed.

According to the latest revisions, real gross national product has grown less than 2% for five consecutive quarters now. This is a wish come true for Alan Greenspan, Chairman of the Federal Reserve, who has espoused the strategy of forcing economic growth below its potential in order to tame inflationary pressures. Unfortunately, this strategy, while theoretically excellent given no external shocks, could condemn the U.S. to a significant economic correction if Middle East developments escalate, or even worse, stagnate.

Reflecting this uncertainty about the security of oil supplies from the Persian Gulf, mid-August saw the spot price for West Texas intermediate crude oil surpass $30 a barrel. This quickly passed through to rising prices at the pumps, which brought an immediate public outcry. It should be noted, however, that while barrel prices jumped 70% in the first week of August, prices at the pump are up, on average, only 25%. If the Middle East turmoil isn't resolved quickly, gas prices are sure to go higher.

Despite Iraq and Kuwait accounting for less than 4% of world oil production, Middle East countries combined represent 25%. In fact, Saudi Arabia stands as the world's third largest producer, behind the Soviet Union and the U.S. The scary point: military strategists say that computer simulations of major conflict in this region almost always result in the elimination of nearly all oil producing facilities, sending the world economy into a severe tailspin.

Given that the U.S. imports roughly half of the 17 million barrels of petroleum it consumes per day, this is certainly a frightening situation. Real investment in petroleum and mining are feasible solutions, but they are long run. Moreover, it remains to be seen if near-term world production increases are capable of offsetting higher speculative oil prices.

With any quick solution seeming remote, the WEFA Group has now revised its baseline forecast, upgrading the probability of recession to 50%. This is their most negative outlook since the last recession in 1982.

WEFA is predicting negative real GNP growth of 1.5% this quarter, with a slight rebound to follow in the fourth quarter. Though recession, which is defined as two consecutive quarters of negative growth, is not in their forecast, 1% or less annual rate of growth for both 1990 and 1991 is. A return to trend growth of 2.5% isn't projected until mid-1992.

Prices are now at risk, despite the decay of domestic activity which has been designed to tame inflationary pressures. Oil hikes have a pervasive impact on the economy and are likely to cause significant upticks in the price indexes. While temporary boosts in the price of oil don't cause inflation per se (see DataTrak), the price indexes don't know that.

The Middle East crisis is the last thing the Fed wanted to see. Higher oil costs will boost prices and lower real growth, intensifying the current environment of "stagflation," the combination of poor growth and inflation.

Fortunately, it is within the realm of possibility that the economy can absorb even higher prices and slower growth, which would move the economy from below-trend growth to far-below-trend growth, but no recession. Unfortunately, the longer the Iraq situation persists, the greater the danger, for there are no instances in all of history where a nation has benefited economically from a prolonged military encounter while it was in progress.

By John Sheridan

Our oil addiction

Overview: Following Saddam Hussein's August 2 blitzkrieg, the only visible alternative to war appeared to be a prolonged presence by the U.S. in the Persian Gulf region, accompanied by practiced international economic sanctions. Amid all this uncertainty, however, one thing is certain: the U.S. is very sensitive to anyone messing with world oil supplies.

Demand: In the first six months of 1990, U.S. petroleum imports, as a percent of domestic deliveries, reached 50%. This is the highest six-month level in history. The American Petroleum Institute (API) reported that in July, imports accounted for 51.3% of all oil used in this country. While first quarter data showed a slight drop in petroleum products supplied to the U.S., the level remains in excess of 17 million barrels per day (mb/d).

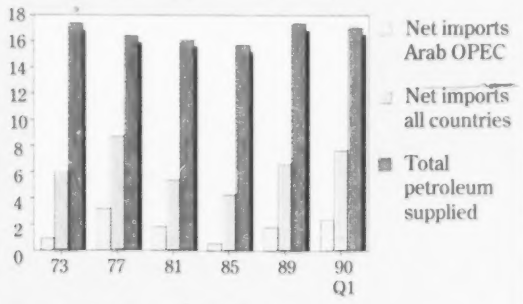
Supply: To meet the oil-guzzling needs of the U.S. and other industrialized nations, world production exceeds 58 million barrels per day. In 1988, the United States ranked second in production (8 mb/d) to the Soviet Union (11 mb/d). Regionally speaking, the Middle East ranks first (15 mb/d), followed by North America (12 mb/d) and Eastern Europe (12 mb/d).

As a result of the 1973 Arab oil embargo, Congress authorized the creation of the Strategic Petroleum Reserve (SPR). As of August 3, 1990, 587 million barrels of crude oil were in the SPR, which is estimated to represent roughly a 73-day supply based on current import levels.

Outlook: Supply uncertainties force prices higher, which creates difficulties for consumers and businesses, who usually respond by buying less. In addition, higher prices lead to further investment from producers. In the long run, the forces applying downward pressure on oil prices will win. In the meantime, the latest headline from Iraq will determine the price of oil.

U.S. dependence on petroleum

Net imports, million barrels per day



Source: Energy Information Administration

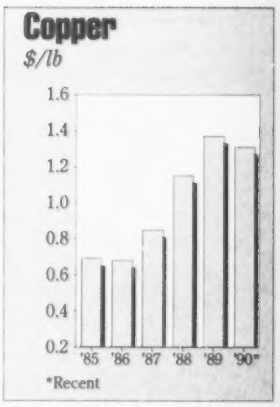
Iraq propels chemical prices

Saddam Hussein's attack is sending shock waves up and down the chemical stream. Fertilizer buyers are bracing for tighter supplies and higher prices. Both Iraq and Kuwait are major exporters of ammonia and urea; combined, they account for nearly 2 million metric tons/year of ammonia and roughly 2.3 million metric tons/year of urea. Sulfur buyers face even greater risk, but, so far, prices have held steady.

Other markets are already witnessing significant price pressures. Styrene is nearing 60¢/lb, up 15¢ over the pre-invasion price. A tanker of benzene, which before August 2 sold for $1.30/gal, is now selling for $1.90/gal. As the Middle East turmoil pushes chemical feedstock prices higher, increases for commodity polymers, especially polyethylene, polyvinyl chloride and polystyrene, are likely to follow.

Copper inventory up, tags falling

London Metal Exchange inventories for copper have reached their highest levels since May 1989, placing downward pressure on prices. Prices have already retreated to $1.30/lb, from $1.35/lb in early August. News of labor troubles in Peru and Zambia, along with production troubles in the Philippines, will inhibit



the recent price erosion. Speculation is that the market has peaked and that economic factors, including rising inventories and waning demand, will offset any labor disruptions and keep prices moving down.

Steel dampens manganese demand

Steel producers account for 90% of U.S. manganese demand. With steel production off roughly 4-5% from 1989 and unit consumption of manganese per ton of steel dropping due to technological advances, 1990 consumption of manganese will be down.

Despite weakened demand, strong ore prices are allowing ferromanganese prices to hold up. Ferromanganese in late August cost $650/ton, up from a range of $540-$620/ton last year. Silicomanganese is another story, however, with prices down roughly 27¢/lb from a year-ago, to 43¢/lb.

Construction aggregates dip

Overview: Demand in 1988 for construction aggregates, which include crushed stone, sand, gravel, and iron and steel slag, reached an all-time high of 2.2 billion tons. In 1989, however, spending for residential, commercial and public construction slowed. Tough times in the construction industry have continued in 1990, but regional pockets of strong performance remain.

Demand: The East North Central region represents the largest consumption of construction aggregates. In terms of dollar value, the South Atlantic region, with sales of almost $1.8 billion, outdistances the East North Central region, where sales in 1989 were $1.5 billion. The past few years have witnessed record sales in a number of states: Ohio, Michigan, Indiana, Illinois, California, Virginia, Tennessee, Washington, New York and Louisiana.

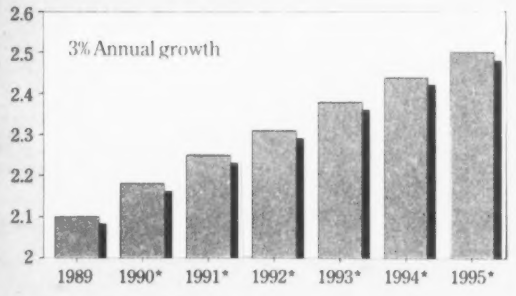
In nearly every region, the leading end-market for construction aggregates is concrete. Concrete producers consume roughly 222 million tons of construction sand and gravel, 670 million tons of crushed stone, and 2 million tons of slag.

Supply: Across all aggregates, California, Texas and Pennsylvania are the largest producers. In crushed stone, Florida, Texas, Virginia, Illinois and Pennsylvania represent over 30% of production. In slag, which is a by-product of steel and iron production, over 65% of production is accounted for by Ohio, Michigan and Pennsylvania. The leading states in the production of sand and gravel are California, Michigan, Texas and Ohio. Imports are not a threat, accounting for less than 1% of aggregate supply.

Outlook: Leading Edge Reports, Cleveland, projects that the U.S. demand for aggregates will grow nearly 3% annually, reaching 2.5 billion tons with a market value of $12.5 billion in 1995. A rough estimate of average price shows a 3-3.5% increase per year through 1995.

U.S. construction aggregates

Total demand, billion dollars



Source: Leading Edge Reports

*Forecast

Paints, coatings rebounding in '91

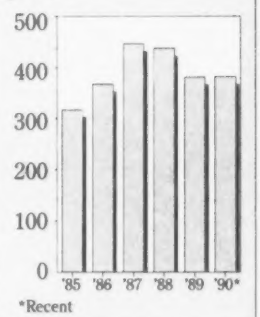
Over the last three years, the value of paints and coatings sales advanced more than 6% annually. Leading Edge Reports, Cleveland, projects the annual rate of growth for the 1989-1992 period to exceed 7%. Though the market is currently struggling, with 1990 growth anticipated to be less than 2%, the future appears quite promising. Between 1992-1995, architectural coatings, which volumewise account for 44% of the paints and coatings market, are expected to grow more than 7% annually, while product and special purpose coatings approach yearly growth of 9% and 8%.

Platinum metals firming slightly

Market watchers were expecting platinum to firm in the wake of the Middle East turmoil. But, like gold, platinum has firmed only slightly, into the $495-$509/troy oz range. Platinum's movement to date is considered weak by many industry observers. Meanwhile, palladium has firmed roughly $1, with the price range now resting at $116-$120/oz. Rhodium, conversely, has jumped $500/oz, to $5,500/oz. Once the Iraq troubles subside, precious metals will adjust relatively quickly to their pre-invasion prices and trends.

Gold

$/troy oz.



*Recent

Crisis doesn't propel gold

Historically, international developments like those in Iraq stimulated a $40-$50 upside spurt in gold, because the precious metal is believed to be a safe haven for money seeking refuge from political and economic tension. This time, however, while gold activity is steady, no rapid price advance has materialized.

On August 3, gold stood at $384.70/oz. By August 9, the price had firmed to only $385.80/oz. In late August, gold's price topped $400/oz, but by September 2, the closing price had dropped back to $387.75/ oz. One merchant suggested that it is inflationary times which stimulate quickly rising gold prices, so unless oil prices jump significantly more than they have, or war breaks out, gold won't show any rapid rise. While the Persian Gulf crisis hasn't stimulated an up-front jump in the price of most precious metals, a gradual firming could be in line if the Iraqi situation stagnates.

Automate for growth

Overview: Industrial automation software experienced over 20% annual growth during the eighties, with no easing in performance expected through the first half of the nineties. Large organizations are investing in computer-integrated manufacturing (CIM) environments, while smaller firms are employing more application software. The bottom line: firms of all sizes are seeking a competitive advantage through industrial automation. Moreover, many managers see automation, which includes hardware, software and services as critical to improved future worker productivity.

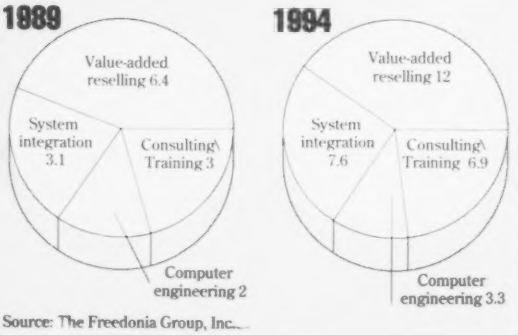
Demand: While all three sectors of the automation market are expected to experience strong growth, software demand should be greatest. Networking and MRP II (manufacturing resource planning) are now allowing individual tasks throughout the entire organization to be tied together, helping to raise efficiency. Linking distinct functions such as engineering design, purchasing, production, inventory control and strategic planning together allows the theory of CIM to become reality.

Supply: Despite the existence of more than 5000 U.S.-based firms engaging in the production and support of computer software, the majority of revenues on this side of the market go to a handful of large, vertically integrated hardware-based firms. IBM alone accounts for a third of all software revenues. Revenue concentration from the top four, which also includes Digital Equipment, Hewlett-Packard and Unisys, equates to nearly half the software market.

Outlook: Durable goods industries will comprise, in the future, the stronger aggregate markets for industrial automation software and services. As of right now, however, the nondurable goods industries boast the most sophisticated factory automation environments.

Industrial automation

Services market, billion dollars



Source: The Freedonia Group, Inc.

Outstanding year for cotton

According to initial USDA acreage estimates, the cotton crop potential for the 1990-1991 period is 16 million bales, which is the largest since 1952-1953. Behind the large planting is upward-trending cotton demand from consumers.

Through the first quarter of 1990, cotton accounted for 50% of all textile purchases, exclusive of carpeting, outselling all man-made fibers combined. The most popular retail fiber has increased its year-ago market share by 3%. Currently, cotton represents 55% of the sock market, 45% of the fleece market and 32% of the sweater market. In the years to come, cotton is expected to represent even more of those markets.

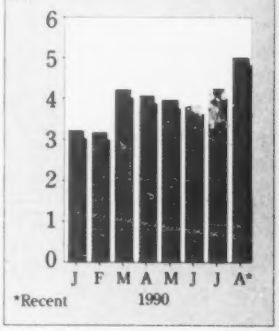
Spot nickel prices remain volatile

Oil prices represent a significant part of nickel producers' operational costs. As a result, spot nickel prices on the London Metal Exchange have remained above $5/lb for the majority of time since mid-August, with large price swings also being witnessed. Mid-August saw the establishment of the year's highest price, $5.16/lb, which is 43¢ higher than the price of nickel in late July.

Accompanying oil concerns are supply disruptions. Supply from the Soviet Union has fallen sharply and the restarting of the strike-plagued New Caledonia Mine is progressing slowly. With healthy demand continuing from stainless steelmakers, the current oil uncertainties will keep prices firm, and volatility up.

Nickel

($/lb)



Ethylene prices shocked higher

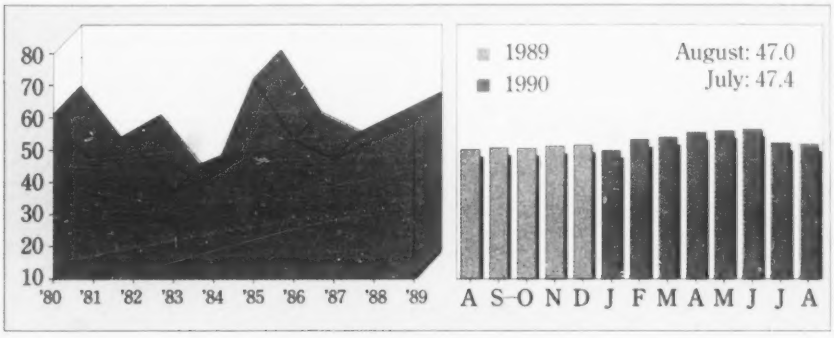
The Iraqi invasion put an end to falling ethylene prices. After falling 2¢ in both May and June, August saw prices rebound 3¢ to 25¢/lb. Another price hike is likely, since producers are facing feedstock costs which are already 4¢/lb higher then they were in July. Not helping buyers are a number of cracker outages in the past few weeks and low inventories. The good news is that scheduled production expansions suggest a persistent downward trend for prices once the Persian Gulf troubles subside.

BUSINESS DATATRAK

By John Sheridan, chief economic editor

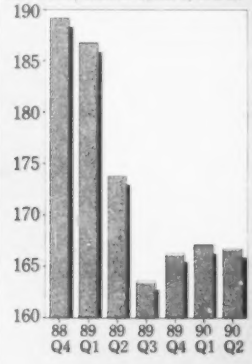
N. A. P. M. business barometer

Based on five indicators (employment, inventories, new orders, production, vendor performance)

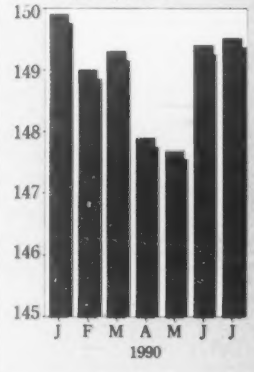


Leading Indicators

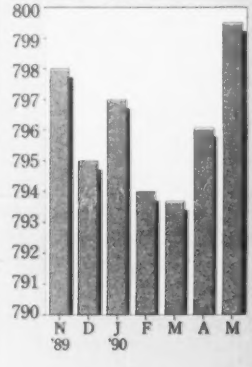
Corporate profits
After tax, billion dollars, SAAR



Retail sales
Billion dollars, SA



Inventory
Billion dollars, SA



Source: Bureau of Census, Bureau of Economic Analysis

KEY ECONOMIC TRENDS

Uncertainty is the threat

Uncertainty is, economically speaking, the number one threat to domestic health. Not that oil costs, inflation, rising unemployment, declining corporate profits (see chart), restrictive monetary policy, fiscal spending troubles and sagging disposable income aren't in and of themselves serious dilemmas. However, the combination of these variables is intensifying the level of uncertainty, whose pervasiveness is very dangerous.

Uncertainty leads consumer and business decision makers to curtail purchasing outlays. People work hard to derive unbiased opinions of the future, but in the rapidly changing circumstances of today, people are hesitant to allocate resources and invest.

Many engines supplied the thrust behind the current expansion. Unfortunately, nearly all engines of growth have now run out of fuel. During the past two years, investment in producers' durable equipment, exports and consumer spending have provided the major propulsion, but their future stimulus, while still continuing to carry the economy, is likely to be less forceful.

The probability that the forces for growth are powerful enough to overcome the negative recessionary pressures currently being applied and sustain expansion are now, at best, slightly better than 50-50.

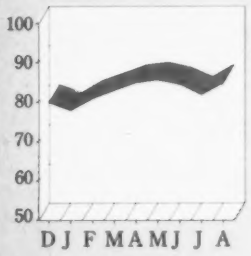
Final demand from consumers disturbingly bears this out. In the second quarter, consumer outlays rose a mere 0.3% at an annual rate, with purchases of durable goods off 10% and retail sales struggling (see chart). With uncertainty rising, spending on furniture, autos, homes and appliances is easily put off.

The advance report on the second quarter also showed a weakening in capital spending, but the Federal Reserve maintains no credit crunch exists, believing there is a continued willingness by banks of all sizes to make loans. However, the availability of funds is not indicative of the requirements for credit, nor the desire by businesses to invest. Moreover, the primary determinant of investment is return and in uncertain times, risk goes up. Without a reduction in the current atmosphere of uncertainty, the investment engine of growth might become too weak to help keep the soft-landing airborne.

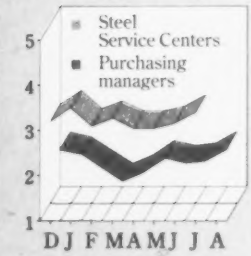
The problem is, this is a critical time for invest-

Steel

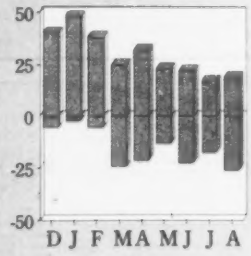
Operating rates



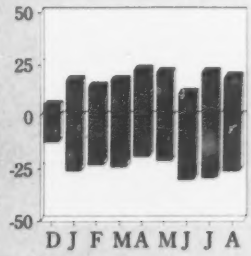
Inventories
(months supply on hand)



Demand (Steel Service Centers)
(Percent of respondents)



Demand (NAPM)
(Percent of respondents)



Source: Steel Service Center Institute
NAPM Steel Buyers Commitee

ment. Capital spending is essential if productivity is to improve. Without productivity gains to offset advancing labor costs, rising unemployment will persist through year end.

Inventories are a mounting concern again (see chart). Following the first quarter drawdown, inventories surged last quarter. While a rebuilding of inventory was expected, it was anticipated that auto builds would be responsible for much of the gain. Surprisingly, cars accounted for less than half of the buildup. Weaker-than-expected demand seems to be the primary reason for a broad-based inventory accumulation.

It's likely that buyers will start to pare stocks, hopeful of keeping inventories in line. Buyers did a good job earlier this year and unless new orders fall rapidly, they should be able to adapt to these less-than-certain times.

METALS SCENE

Steel

The July average daily shipping rate (ADSR) plummeted for the nation's steel service centers. Year-to-date shipping levels are now off 0.9% from 1989's pace, with performance during the remainder of the year becoming increasingly clouded.

July's 7.8% drop in the ADSR was broad based, as six of seven product categories experienced declines. Carbon flat was off 10%, while plate moved 9.3% lower. Somewhat offsetting the downward pull were carbon structurals, which climbed 2.8%.

Comparing July 1990 to July 1989, shipments are up 1.4%, due to a 16% jump in structurals, implying that the July plunge may be largely due to the traditional seasonal slow-down and not indicative of further slowing by the general economy.

In fact, Steel Service Center Institute (SSCI) President Andrew G. Sharkey commented that member optimism is higher now than it was last year at this time. Currently, 85% of SSCI respondents expect incoming orders to either advance or hold steady during the next three months. This is up over 30% from last year.

Sparking concern is the rising inventory-to-shipments (I/S) ratio for steel service centers. While inventory levels remained stable in July, sales dropped off. The June I/S ratio, which stood at 3.15, rose to 3.40 in July, implying that service centers now possess on-hand supplies of nearly three-and-a-half months. The good news is that the 1989 July ratio came in at 4.2. However, any persistence in the current upward trend will signal trouble.

Import prices
(Compared to domestic)

STEEL BUYERS
ABOVE 29%
SAME 42%
SLIGHTLY BELOW 29%
SUBSTANTIALLY BELOW 0%
SERVICE CENTERS (CARBON)
ABOVE 0%
SAME 77%
5-10% BELOW 23%
11-20% BELOW 0%
OVER 20% BELOW 0%

Aluminum

Aluminum prices turned up in the second quarter following six consecutive months of decline. In 1989, tags fell nearly 25% to 74¢/lb, with continued easing witnessed during the first two months of this year. In March, prices began to turn up from the February low of 66¢/lb, reaching 71¢/lb by month end. In late August, the aluminum market continued to tighten, with U.S. prices piercing the 80¢/lb barrier. Analysts noted the extremely strong showing of ingot exports as fueling the continued price rise.

Forthcoming oversupply expectations were primarily responsible for the early-year price drop. By March, however, the reality was that no excess supply was surfacing and, as a result, the bearish perceptions quickly faded, allowing prices to gravitate toward the current level.

Despite the fact that business activity is slowing worldwide, the WEFA Group predicts world consumption to advance 1-2% this year, with a 3-4% rise in 1991. With respect to price, the WEFA Group is looking for a general firming, from an average of 71¢/lb this year on the London Metal Exchange, to 80¢/lb in 1991.

REGIONAL PERSPECTIVE

Fed survey reports softening

Profit margins are likely to be squeezed further if the latest Federal Reserve survey of banking and business contacts is accurate. It's true that the majority of respondents believe growth continues. However, many of the Fed's "Beigebook" participants also believe that growth's pace has declined, with expectations regarding the future more subdued than in the previous survey. In general, wage pressures are said to be rising 3-5%, but a tightening job market is beginning to constrain these demands. Comments on prices are mixed, with many noting that costs are continuing to rise and price hikes are becoming increasingly difficult to pass along.

Manufacturing: Manufacturers commented that activity has flattened, with continued differences across regions and industries. Exports are said to be exhibiting notable strength, rebounding from their second quarter dip. Steel producers say that orders continue to exceed expectations, but third-quarter cuts in auto production threaten steel demand. Excluding commercial aircraft and steel, backlogs and leadtimes are being worked down, with the conscientious effort of buyers given as the main reason.

Production activity appears to be slowing, with nearly all participants reporting that labor utilization, in general, is either flat or weakening. According to respondents in the St. Louis, Minneapolis and San Francisco districts, the weakness was especially pronounced in defense-related activities, while Dallas, Richmond and Atlanta note significant weakness in textiles and furniture production.

Many manufacturers foresee tough times persisting well into 1991, with poor sales the almost unanimous problem. Most of the business people surveyed, however, are cautiously optimistic that exports, new products and price increases will support their firms for the next 12 months. Interestingly, the majority of respondents express more confidence in the performance of their own firm than they do in the overall economy.

Generating optimism are reevaluation activities that the current economic strain is already beginning to incite. Moreover, these activities will, down the road, benefit both individual firms and society overall. When times are tough, managers are looking for alternatives. Any profit squeeze brings about an extensive top-to-bottom review of operations, in the quest for cost reduction. Often, this process also includes a reevaluation of personnel and some long-range human resource planning. Such activities are good because they enhance the long-run competitive performance and profit potential of the firm, while simultaneously helping the economy reallocate resources to their most valued uses.

Consumer spending: Retail sales were described as generally weak, with pockets of strength reported in the following districts: Cleveland, Minneapolis and Dallas. Retailers in New York and St. Louis were the most pessimistic, citing layoffs and defense cuts as eroding consumer's confidence and willingness to spend. Sales of home furnishings, new cars and appliances are described as flat or below year-ago levels.

Many retailers commented that they are becoming less optimistic about the sales outlook for the rest of the year. Any significant drop off in sales could signal trouble because higher-than-desired retail inventories were reported by five of the twelve districts.

Construction and Real Estate: The levels of residential real estate construction and sales are extremely weak, with nearly all respondents placing current levels below those of a year-ago. High inventories of new and existing homes appear to be causing some erosion in housing prices. Remarkably, Cleveland reported its housing market to be mixed, with prices up 6-8% over last year. Large inventories of space were seen as the reason why even the few pockets of strength for nonresidential construction were beginning to stagnate. Public infrastructure appears to be the last remaining source of stability.

Finance: Commercial loan activity is slowing with indications that it, too, has dropped below year-ago levels. Lending to consumers isn't faring much better. Obtaining new credit for real estate and construction projects is said to be more difficult as borrower scrutiny has increased. Businesses in the Atlanta and Philadelphia districts note that problems with collecting and receivables are also beginning to mount.

Agriculture: Weather conditions are threatening some crops, but the outlook appears good for agriculture production. Wheat production in Kansas is the highest on record, looking to double last year's level. However, the St. Louis district reports that wheat yields are 12-26% lower on account of disease. The southeast has yet to escape hot and dry weather conditions, with Atlanta reporting that soybean, corn and forage production could be off by as much as 25% this year. Dallas respondents sounded similar concerns, noting that the heat was adversely affecting cotton, corn and grains, with prices now resting 6% higher than a year ago. Meat prices are also said to be moving higher.

CURRENT PRICES

The inflation equation

At the core of the inflation equation, at least in one analysis, is the Philip's Curve. The Philip's curve shows a trade-off, at least in the short run, between unemployment and inflation. Here's why: excess demand triggers rising inflation, while excess capacity stimulates an easing of inflation.

Reflecting the magnitude of excess demand or excess capacity is the gross national product (GNP) gap, which is determined by the relative positions of actual and potential GNP. When actual is above potential GNP, excess demand exists. However, actual GNP has been below potential for nearly two years now, with no change in direction expected until late 1991 or early 1992, suggesting a sustained easing in inflation.

Currently aggravating the price picture are inflation shocks due to imports and inflation expectations. The important thing to remember about foreign price shocks is that they are temporary, and that a large change in the price of one commodity relative to the general level of prices is not inflation. Once the oil shock has worked its way through the system, the general price level will return to its previous path; determined by the excess demand/excess capacity situation.

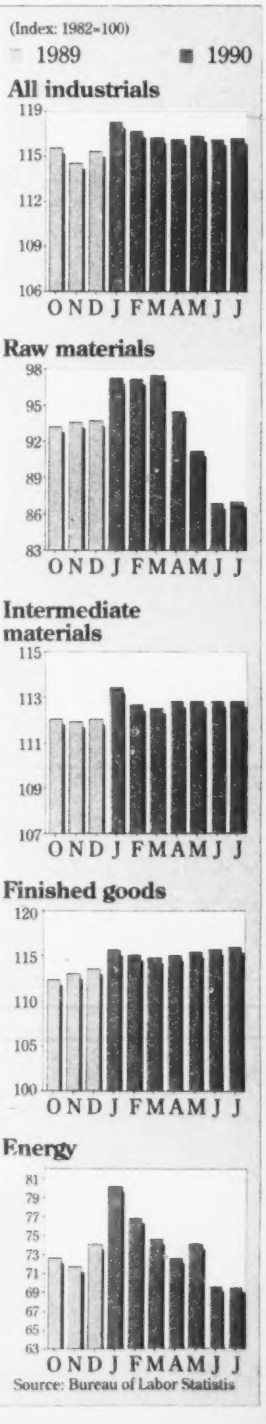
Finally, inflation expectations keep wages and other costs of production up, thereby inhibiting the speed at which inflation retreats. However, the underlying fundamentals are clear: inflation is waning. Therfore, with the economy struggling the way it is, evidence strongly suggests that the Federal Reserve should loosen monetary policy and lower interest rates.

This month's breakdown

Index 1982=100

	Latest level	month ago	year ago
Bearings	130.9	-0.3	5.3
Bolts, nuts, etc.	116.3	-0.1	3.9
Chemicals, inorganic	112.7	1.3	3.9
Chemicals, organic	109.4	-0.8	-5.1
Concrete products	113.3	0.0	1.7
Corrugated containers	108.4	-0.6	-3.6
Cutting tools, small	113.1	0.1	2.2
Electrical lamps (bulbs)	130.5	0.5	4.7
Electronic components	118.7	0.3	-0.7
Fans and blowers	123.5	0.0	2.2
Foundry and forge products	117.2	0.3	2.0
Fuel oil (residual)	41.3	-4.2	-16.4
Furniture, commercial	133.5	-0.1	3.2
Gasoline	70.0	-3.0	-1.3
Glass, flat	107.4	-0.5	-1.9
Glass containers	120.8	-0.2	4.2
Gypsum products	105.3	-0.8	-4.1
Hand tools	135.0	0.4	5.4
Hand tools, power driven	121.6	0.2	4.1
Industrial furnaces	127.7	0.0	2.1
Integrating and measuring instruments	127.2	0.2	5.6
Internal combustion engines	119.6	0.2	3.6
Lubricating oil	113.7	-1.2	2.3
Lumber millwork	129.9	-0.5	1.6
Material handling equipment	115.4	0.3	2.8
Metal containers	114.1	-0.2	1.4
Metal mill shapes	129.3	0.5	-4.9
Metal tanks	110.5	0.4	-0.8
Metalworking machines	122.9	0.1	3.7
Motors and generators	133.7	0.0	3.6
Motor trucks	127.8	0.9	2.2
Nonferrous metals	132.7	0.5	-2.6
Office and store equipment	108.6	-1.4	-1.1
Paperboard	134.9	-0.4	-3.3
Paper boxes and shipping containers	129.4	-0.2	-0.8
Paper office supplies	120.6	0.1	-1.3
Paint	124.7	0.2	3.9
Plastic resins	122.1	-1.5	-9.8
Precision measuring tools	128.8	0.0	2.8
Pumps and compressors	119.5	0.3	3.6
Refactories	123.0	0.2	2.7
Rubber belts and belting	118.9	-0.3	-0.8
Scales and balances	109.1	0.0	2.2
Switch gear	124.5	0.6	4.5
Textiles, synthetic fibers	106.3	-0.2	-0.2
Textiles, gray fabrics	116.5	-0.9	-0.9
Tires and tubes	97.0	0.0	-0.2
Transformers and power regulations	119.8	0.0	1.4
Welding equipment	127.4	-0.2	4.1
Wire and cable	140.5	-0.3	0.1

Industrial prices



Source: Bureau of Labor Statistis

PROCUREMENT

NAPM's PMI deserves watching

The Purchasing Managers' Index (PMI), which is released by the NAPM in its monthly Report on Business, is perhaps the best near-term barometer available on economic health. Not only is it released before any official data, history is proving the composite index quite accurate, and therefore, very valuable.

While it has long been acknowledged as a good indicator of manufacturing performance, the PMI's recent track record in predicting gross national product (GNP) is also very good. Since 1986, the PMI has been within plus or minus 0.3% of predicting the actual change in real GNP in all but one year, 1987, when the index missed by 0.8%.

In today's uncertain times, the PMI offers comforting news. August's reading of 47 corresponds to real GNP growth of 1.3% for 1990. The index, however, can change rapidly, as July's drop indicates. When does the PMI become a red flag for the economy? Robert J. Bretz, chairman of the NAPM Business Survey Committee, says that "The PMI would have to fall below 44 percent before indicating a decline in real GNP."

Interestingly, comments on inventories are mixed. Many buyers are clearly worried about being caught with excess inventory and are attempting lower existing stock until a revival in sales appears.

On the other hand, a few buyers are attempting to quickly build inventory in order to create a buffer against temporary price hikes due to the Middle East problem. At least a few buyers are seeking to use inventories to delay or temper price hikes to customers, in hopes that things will soon return to normal. Excess inventories are only a problem if sales fall. If future prices rise and sales hold steady, excess inventories now mean higher profits later.

Manufacturing plans

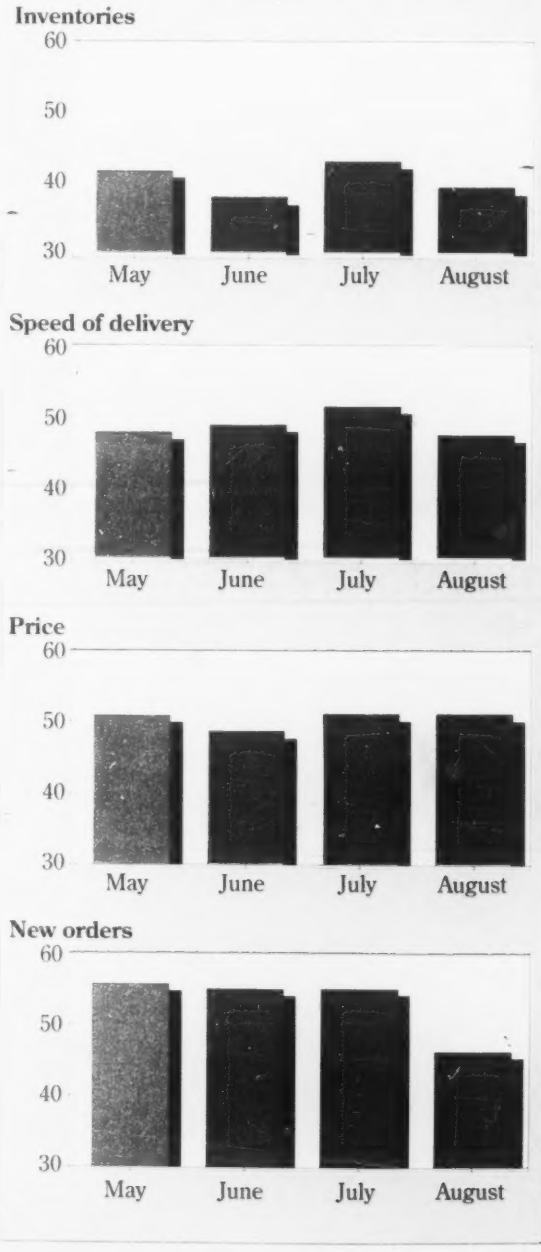
A.T. Kearney's recent survey of 258 Fortune 1000 manufacturing firms finds 80% currently engaged in foreign sourcing. This is a drastic jump from just five years ago, when only half of those same 258 companies sourced globally. The study discovered that survey participants plan a number of activities to enhance their competitive position, especially in the face of the potentially challenging European consolidation beginning in 1992.

Included in the list of future activities: spending increases of up to 70% on foreign sourcing by 1995

NAPM procurement trends

(Seasonally adjusted diffusion indexes)

An index where 50 is defined as the neutral level, to the extent a reading is above 50, it represents an expansionary tendency. More particularly, rising inventory prices, and new orders are seen as positive signs of economic growth. A trend towards lower deliveries is similarly interpreted.



(for those participants already involved in sourcing globally); domestic facility expansion by 42% of the respondents during the next two years, with 14% also expanding offshore operations; and continuing investment in technology. A majority of firms reported seeing reductions in the cost of production due to automation, with 62% of those surveyed sharing the belief that the future of domestic manufacturing depends on how well technology gets applied operationally.

For example, most of the respondent companies plan to move forward with computer integrated manufacturing (CIM) systems, because of their substantial potential to further improve quality and customer service.

But James F. Swallow, a vice president with the Chicago-based consulting firm, remains concerned that investment decision-makers are preoccupied with cost and not paying enough attention to market share. "our results," he says, "indicate a continued preoccupation with cost factors, giving cost a primary reason for expansion, rather than competitive positioning—a far more appropriate objective when considering the impact of Europe 1992."

A major worry of those answering the survey is human resources. Many manufacturing leaders are worried that their companies are lacking the number of skilled executives needed to compete successfully on a global basis.

LATEST SPOT MARKET PRICES

	Latest price	Previous month	Year ago
FERROUS METALS			
Steel, bars, stainless, 303, cwt	188.00	179.00	179.00
Steel, bars, HR carbon, 1000 series, cwt	19.20	18.70	21.00
Steel, bars, HR carbon alloy, cwt	25.00	24.50	24.50
Steel, bars, cold-finished carbon, cwt	34.00	32.50	34.50
Steel, plates, carbon, cwt	23.25	23.25	25.20
Steel, plates, strip mill, cwt	23.60	23.60	23.60
Steel, plates, alloy, cwt	34.55	34.05	34.55
Steel, sheets, C.R., class 1, cwt	30.65	30.65	29.65
Steel, sheets, HR, cwt	23.00	23.00	22.25
Steel, sheets, stainless, 304, cwt	124.00	124.00	124.00
Steel, strip, HR carbon, cwt	22.10	22.10	22.10
Steel, strip, CR carbon, cwt	36.18	36.17	38.30
NONFERROUS METALS			
Aluminum, unalloyed ingot, lb.	0.83	0.73	0.82
Aluminum, alloyed ingot, 355, lb.	0.93	0.93	0.95
Aluminum, secondary ingot, 380, 30000 lb. lot	0.80	0.78	0.73
Antimony, lb., merchant	0.85	0.81	0.95
Cadmium, N.Y., dealer, lb.	2.90	2.90	4.60
Copper, electrolytic wire bars, lb.	1.42	1.41	1.19
Copper, cathode, full plate, lb.	1.32	1.28	1.10
Gold, N.Y., troy oz.	387.00	367.00	402.90
Lead, common, N.Y., lb.	0.50	0.50	0.42
Magnesium, pig ingot, (99.8%), lb.	1.63	1.63	1.63
Mercury, 50 fl. lots, N.Y., fl.	260.00	265.00	270.00
Molybdenum, oxide, canned, lb.	3.35	3.35	3.32
Nickel, cathode, dealer, lb.	5.20	4.60	5.85
Platinum, dealer, oz.	498.00	475.00	494.00
Silver, N.Y., troy oz.	4.80	4.84	5.20
Tin, N.Y., dealer, lb.	2.78	2.81	4.38
Zinc, high grade, lb.	0.81	0.82	0.82
Zinc, die casting alloy, No. 3, lb.	0.89	0.90	0.74
PAPER (unit=ton)			
Uncoated book #3 offset	940.00	940.00	1020.00
Watermarked bond	1090.00	1090.00	1095.00
Unbleached kraft paper, grocery bag, 30 lb.	630.00	660.00	680.00
Bleached kraft, grocery bag, 30 lb.	800.00	800.00	810.00
Kraft linerboard, 42 lb., domestic, East	370.00	370.00	380.00
Newsprint, 30 lb., East	565.00	535.00	573.00
TEXTILES			
Acrylic, open-end spun, 1/18, lb.	1.52	1.52	1.46
Carded cotton, ring-spun, 18/1, lb.	1.61	1.61	1.54
Carded cotton, open-end spun, 18/1, lb.	1.46	1.42	1.36
Combed cotton, ring-spun, 18/1, lb.	1.83	1.83	1.90
Nylon, textured, 70/20, lb.	2.70	2.68	2.45
Polyester, 50/50% carded cotton, 30/1, lb.	1.83	1.85	1.70
Polyester, ring-spun, 100%, 18/1, lb.	1.64	1.64	1.58
Rayon, high-wet modulus, lb.	1.36	1.36	1.34
CHEMICALS			
Acrylonitrile, tanks, lb.	0.35	0.35	0.40
Ammonia, anhydrous, tar[illegible]rs, Gulf Coast, ton	0.90	77.00	123.00
Benzene, gal.	1.30	1.30	1.50
Caustic soda, metric ton	355.00	350.00	320.00
Cresylic acid (over 25%), tanks, lb.	0.55	0.55	0.55
Formaldehyde, 37%, (12%-15% meth.), tanks, lb.	0.13	0.13	0.11
Glycerine, synthetic, 96%, tanks, lb.	0.74	0.74	0.79
Methanol, syn., tanks, 4000 gals., f.o.b. Gulf Coast plants	0.40	0.40	0.52
Naphthalene, crude, tanks, lb.	0.17	0.17	0.16
Phthalic anhydride, molten, tanks, lb.	0.39	0.33	0.41
Polyethylene resin, low density, liner film grade (market place), lb.	0.52	0.52	0.49
Polypropylene, homopolymer grade (market price), lb.	0.40	0.37	0.46
Polystyrene, general purpose grade (market price), lb.	0.50	0.50	0.59
Polyvinyl cholride, pipe grade., (market price), lb.	0.36	0.40	0.44
Soda ash, light 58%, 100 lb., paper bags	150.00	150.00	135.00
Styrene monomer, 99.6%, tanks, lb.	0.41	0.40	0.49
Sulfur, crude, Tampa, FL, long-ton	128.00	128.00	142.00
Sulfuric acid, 66%, commercial, tanks, ton	69.89	69.75	66.86
Titanium dioxide, anatase, reg., carlots lb.	1.02	1.04	0.95
Xylene, Gulf Coast, spot, barge, gal.	1.29	1.03	0.95
BUILDING MATERIALS			
Lumber, 2x4 fir, mbf, cl	341.33	341.56	326.95
Lumber 2x4 pine, mbf, cl	337.06	341.28	321.47
Plyform, 3/4", msf, cl	645.91	663.11	570.00
Plywood, 5/8", msf, cl	375.20	388.38	370.22
Cement, type 1, bulk, ton	63.22	63.47	63.88
Sand, concrete, ton, cl	6.88	7.43	7.17
Ready-mix concrete, 3000 psi/cu. yd.	49.28	49.59	48.81
Crushed stone, base course, ton, cl	6.29	6.30	5.84
Concrete blocks, sand/gravel, 8"x8"x16", per hundred	84.64	84.64	87.17
Reinforcing bars, grade 60; per cwt.	22.04	22.04	21.32
Asphalt paving AC-20, ton	107.32	108.38	108.53
Concrete sewer pipe, 24", prem. joint,, per ft., cl	17.41	18.14	17.90
FUELS			
Crude oil (W. Tx. Int. Cush), bbl.	28.00	20.20	20.40
Diesel (reseller rack, Chi.), gal.	0.77	0.56	0.51
Heating oil No. 2 (N.Y.), gal.	0.77	0.58	0.56
Heating oil No. 2 (Gulf spot), gal.	0.77	0.54	0.48
Fuel oil No. 6 (N.Y.), tank car contract	21.25	18.75	18.75
Gasoline (prem unlded N.Y.), gal.	1.03	0.85	0.78
Gasoline (reg unlded N.Y.), gal.	86.00	0.70	0.59
Kerosine (reseller rack, Chi.), gal.	0.86	0.65	0.60
SCRAP MATERIALS			
Copper, No. 1, brass mill scrap, carload	1.22	1.21	1.03
Copper, No. 1, refineries copper scrap, carload	1.14	1.13	0.98
Copper, No. 2, refineries copper scrap, carload	1.03	1.01	0.89
Copper, No. 1, brass ingot makers', carload	1.10	1.09	0.93
Copper, No. 2, brass ingot makers', carload	0.99	0.97	0.84
Brass, yellow solids, carloads	0.64	0.62	0.57
Aluminum, secondary smelters, old sheet & cast	0.49	0.47	0.43
Aluminum, secondary smelters, mixed clips	0.54	0.53	0.50
Zinc, old, smelters scrap	0.30	0.30	0.35
Zinc, die cast slab, smelters scrap	0.36	0.36	0.37
Steel, no. 1, hvy., dlvd., Pitts., ton	119.00	118.00	99.00
Steel, no. 1, hvy., dlvd., Chi., ton	116.00	116.00	108.00

Sources: Metals week, American Metal Market, Engineering News-Record (20-city averages), America's Textiles International, Journal of Commerce, Chemical Marketing Reporter, Pulp and Paper Week.

* This page has been revised to better serve you.

Adhesives stick to new legislation

In an effort to meet increasing demand and comply with stringent government restrictions on volatile organic compounds (VOCs), adhesive manufacturers are including water-based, high-solid and hot-melt adhesives in their product lines, replacing solvent-based adhesives in many applications.

This is good news for adhesive buyers as smaller amounts of these new compounds are required to complete a job, and disposal costs for nontoxic excess are considerably less.

One disadvantage of water-borne compounds, however, is long drying time compared to their solvent-based counterparts. Under humid conditions, for example, a water-based adhesive could take as long as a day to dry.

The use of dryers and ovens, however, can reduce curing time to as little as 30-40 seconds, says Lal Teckchandani, Uniroyal Adhesives and Sealants Co. "Actual usage costs [of the water-based adhesives] can offset the cost of buying and using a dryer," Teckchandani said.

Technological advances are making the water-based compounds as strong and versatile as solvent bases. The Silaprene® line of water-based adhesives from Uniroyal, for example, has multi-purpose applications including bonding vinyl film to substrates such as ABS, fiberboard, chipboard and fiberglass boards. It also bonds vinyl materials to auto doors and dashboard panels. Although the adhesive has an open tack time of five hours before being heat activated in the thermoforming process, once dry it can retain its bonding properties between -60 and 250 F.

Mobay Corporation is continuing work on its line of Dispercoll aqueous polyurethane dispersions. These adhesives contain less than 1% solvent, compared with the 60-80% level typical of solvent systems. The line includes various products for a wide range of applications, from automotive weatherstripping to bonding fabric to particle board.

By Nan Webb

Growth

Original equipment manufacturers (OEMs) are consuming increasing amounts of adhesives as they manufacture more products made from coated metals. In the appliance industry, for example, mechanical fastening can chip coatings or mar finishes. Other industries which are consuming large amounts of adhesives include automotive, construction, furniture, and electronic equipment.

Increased automation is also broadening the adhesives market. Whereas mechanical fastening and welding create stress points and heat marks, adhesives distribute the weight load across the entire bond for added strength without marking surfaces.

Adhesive shipments grew by an estimated 5% in 1989 and are forecast by the Commerce Department to grow another 7% this year. In the case of hot melt adhesives, price is also rising rapidly—an average of 4% per year due to higher raw material costs and an upgrading to higher performance polymers, according to the Freedonia Group, Cleveland.

Ethylene vinyl acetate (EVA) and its copolymers constitute the largest category of hot melts at about one-third of the market. They are among the least expensive hot melts and are mainly used for general packaging applications.

U.S. HOT MELT ADHESIVES DEMAND BY MARKET

(Million pounds)

Item	1988	1993	% Annual growth 93\88
Packaging:	507	585	2.9
Paperboard	394	450	2.7
Tapes and labels	67	85	4.9
Bags and sacks	46	50	1.7
Nonwoven disposables	88	105	3.6
Furniture	68	80	3.3
Transportation	24	28	3.1
Shoes	23	22	-0.9

Source: The Freedonia Group, Inc.

From the suppliers...

A **solventless technology**, which combines epoxy-based silicone polymers with a proprietary iodonium salt catalyst, has applications in labels, tapes and other pressure-sensitive adhesives (PSAs). This new technol-

ogy provides release to a variety of adhesives without acrylic lockup. Differential release is possible by blending within the product line. *General Electric Co., Silicone Products Div., Waterford, NY 12188* **Circle 13**

A 58-page color **catalog** provides technical, selection and ordering information for manufacturer's products including: adhesives, coatings, sealants, gasketing compounds, dispensing and curing equipment, and maintenance and repair products. *Loctite Corporation, 705 North Mountain Rd., Newington, CT 06111* **Circle 62**

Long-wearing **Super Instant Epoxy** provides a fast, permanent or temporary bonding where quick handling strength is required. Like or unlike surfaces of almost any joint thickness can be bonded at room temperature without clamping or waiting. Applications include fastening metal fixtures or signs on masonry, automotive repair and maintenance and non-conductive bonding of electrical or electronic parts. *Smooth-On, 1000 Valley Rd., Gillette, NJ 07933* **Circle 20**

A new **low-temperature hot melt** for bulk hot-melt applicators used in packaging provides high-strength bonding without the clogging, charring, skin burns, noxious fumes and other problems caused by the high application temperature of conventional hot-melt adhesives. The adhesive uses a resin/polymer mixture that can be applied as much as 150 degrees below conventional hot melts, says manufacturer. *Ad-Tech, a division of Adhesive Technologies, Inc., 3 Merrill Industrial Dr., Hampton, NH 03842* **Circle 44**

A new **flexible epoxy**, a high peel and shear strength formulation, provides tough, permanent, vibration-resistant bonds for the assembly and repair of automotive, marine, aircraft, truck and tractor parts. The Double-Bubble® single-use package contains a premeasured amount of resin and the correct ratio of hardener which eliminates the need to measure each component before mixing. *Hardman Inc., 600 Cortland St., Belleville, NJ 07109, Fax 201/751-8407* **Circle 50**

A 100% **solids adhesive** mixes easily for coil fabrication and coil repair applications such as shorted turns and damaged end wire extensions. It develops strong bonds to metals, glass and ceramics as well as to most types of coil coatings and to insulators. *Tra-Con Inc., 55 North St., Medford, MA 02155* **Circle 66**

The BP700 **Adhesion Promoter** is a clear, two-component urethane product that greatly increases adhesion on new hard-to-stick-to OEM baked enamels or cured air dry acrylic and urethane enamels. Requiring only a thin, fast-drying coat, BP700 involves an almost wet-on-wet application and needs only about 10 minutes before the color coat can be applied. *BASF America, 19855 West Outer Dr., Suite 401 East, Dearborn, MI 48124* **Circle 68**

PIG® putty is an **epoxy in putty form** for use on a wide variety of materials including metals, wood, masonry, glass, ceramics and porcelain and is available in a seven-inch putty stick. Like traditional epoxies, PIG putty contains two separate materials that, when mixed together, create a permanent, tough seal for holes, cracks and broken parts. *New PIG Corporation, One Pork Ave., Tipton, PA 16684-0304* **Circle 70**

A new **all-weather EPDM sealant** has been specially formulated to provide long-lasting, weather-tight seals to metals that have been oil-milled. Applications of the Silaprene All-Weather Sealant include sealing of metal parts on recreational vehicles, trucks, buses, metal buildings and manufactured homes. Service temperatures range from -65 F to 220 F. *Uniroyal Adhesives and Sealants Co., Inc., 312 North Hill St., Mishawaka, IN 46544-1399* **Circle 80**

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Choosing an adhesive

There are several factors to consider when selecting an adhesive/sealant.

✔Consider the product to be bonded or sealed—some adhesives/sealants react poorly with certain metals, and, for safety requirements—as in the aerospace industry—non-flammable adhesives are now available.

✔Determine strength requirements—low-strength adhesives/sealants are designed to meet the requirements of expansion joints in building walls, roofs and roadways; medium-strength products serve a wide variety of consumer and industrial uses; while high-strengths meet severe requirements such as in aerospace sealing and fastening.

✔The adhesive selected must be able to withstand the environment in which it's being used. Adhesives used under machining stresses, for example, need to have an elastic bond to absorb vibrations. Temperature is another factor to consider; adhesives used on car dashboards or windshields must be able to withstand temperatures from -20 up to 180 F. Some, such as iron-oxide-containing acetoxy sealant, are capable of withstanding temperatures over 400 F indefinitely.

✔Consider, too, the application process. High-viscosity adhesives, for example, can't be sprayed well. Also, some solvent-based products have an acetic by-product which can be irritating to personnel in poorly ventilated work areas.